Attorney Docket No. 24061.37
Customer No. 42717

Amendments To The Claims

The following list of the claims replaces all prior versions and lists of the claims in this application.

Claim 1 (Canceled).

2. (Previously presented) The capacitor device recited in Claim 4 wherein the third electrode is located over the first and second electrodes.

3. (Previously presented) The capacitor device recited in Claim 4 further comprising a third insulating layer located over the third electrode, wherein the first and second interconnects are located over the third insulating layer.

4. (Currently amended) A capacitor device, comprising:

a first electrode located over a substrate ~~and connected to a first interconnect~~;

a first insulating layer located over the first electrode;

a second electrode located over the first insulating layer ~~and connected to a second interconnect~~;

a second insulating layer located over the second electrode; ~~and~~

a third electrode located over the second insulating layer ~~and connected to the first interconnect~~;

~~wherein the first electrode and the first interconnect are connected by a first via; the second electrode and the second interconnect are connected by a second via; and the third electrode and the first interconnect are connected by a third via~~

first and second interconnects located vertically higher than the third electrode;

a first via extending upwardly from the first electrode to the first interconnect;

a second via extending upwardly from the second electrode to the second interconnect; and

a third via extending upwardly from the third electrode to the first interconnect.

5. (Original) The capacitor device recited in Claim 4 wherein at least one of the first, second and third vias and at least one of the first and second interconnects are collectively a dual-damascene structure.

6. (Previously presented) The capacitor device recited in Claim 4 wherein the first insulating layer includes an insulation layer and an etch stop layer located over the insulation layer.

7. (Currently amended) The capacitor device recited in Claim 4 wherein the second electrode is ~~within a~~ within the perimeter of the first electrode when the first and second electrodes are viewed ~~in a direction perpendicular to the first and second electrodes~~ from a side thereof opposite from the substrate.

8. (Currently amended) The capacitor device recited in Claim 7 wherein the third electrode is ~~within a~~ within the perimeter of the second electrode when the second and third electrodes are viewed ~~in a direction perpendicular to the first and second electrodes~~ from a side thereof opposite from the substrate.

9. (Previously presented) The capacitor device recited in Claim 4 wherein the first electrode comprises copper.

10. (Previously presented) The capacitor device recited in Claim 4 wherein the second and third electrodes each comprise a same one selected from the group consisting of:

tungsten;
tungsten silicide;
aluminum;
titanium; and
titanium nitride.

11. (Previously presented) The capacitor device recited in Claim 4 wherein the second and third electrodes each include a plurality of conductive layers.

12. (Previously presented) The capacitor device recited in Claim 4 wherein a total unit capacitance of the capacitor device ranges between about 1.3 $fF/\mu m^2$ and about 2.0 $fF/\mu m^2$.

13. (Previously presented) The capacitor device recited in Claim 4 wherein a total unit capacitance of the capacitor device is about 1.5 $fF/\mu m^2$.

Claims 14 to 18 (Canceled).

19. (Currently amended) A semiconductor device, comprising:

a transistor element located over a substrate and having a contact;

a capacitor element, including:

a first electrode located over the substrate;

a first insulating layer located over the first electrode;

a second electrode located over the first insulating layer;

a second insulating layer located over the second electrode; and

a third electrode located over the second insulating layer;

a dielectric layer located over the transistor element and the capacitor element;

a first interconnect located over the dielectric layer~~, coupled to the first electrode by a first via, and coupled to the third electrode by a second via;~~ and located vertically higher than the third electrode;

a second interconnect located over the dielectric layer~~, coupled to the second electrode by a third via, and coupled to the transistor contact by a fourth via~~ and located vertically higher than the third electrode;

a first via extending upwardly from the first electrode to the first interconnect;

a second via extending upwardly from the second electrode to the second interconnect;

a third via extending upwardly from the third electrode to the first interconnect; and

a fourth via extending upwardly from the transistor contact to the second interconnect.

20. (Original) The semiconductor device recited in Claim 19 wherein the first interconnect and the first and second vias are collectively a dual-damascene structure.

21. (Original) The semiconductor device recited in Claim 19 wherein the second interconnect and the third and fourth vias are collectively a dual-damascene structure.

22. (Original) The semiconductor device recited in Claim 19 wherein the first insulating layer includes an insulation layer and an etch stop layer located over the insulation layer.

23. (Original) The semiconductor device recited in Claim 19 wherein the first electrode comprises copper.

24. (Original) The semiconductor device recited in Claim 19 wherein the second and third electrodes each comprise a same one selected from the group consisting of:

tungsten;

tungsten silicide;

aluminum;

titanium; and

titanium nitride.

25. (Original) The semiconductor device recited in Claim 19 wherein the second and third electrodes each include a plurality of conductive layers.